AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A plasmid comprising the following functional units:

- a prokaryotic origin of replication,
- a marker sequence,
- two specific recombinase recognition sequences and
- a multiple cloning site,
- a regulatory element for the expression of the recombinase characterised in that it comprises a gene coding for a sequence specific recombinase, a minicircle identification sequence for the identification and isolation of the minicircle and/or a miniplasmid identification sequence for the identification, isolation and removal of the miniplasmid and wherein a gene coding for a specific protein is inserted into the multiple cloning site,

whereby the units are arranged on the plasmid in such a way that the plasmid is divided into a miniplasmid and a minicircle upon induction of the expression of the sequence specific recombinase via the regulatory element, said miniplasmid comprising the prokaryotic origin of replication, the marker sequence and the gene for the sequence specific recombinase and said minicircle comprising the multiple cloning site,

wherein the sequence specific recombinase is ParA resolvase.

2. (currently amended): The plasmid according to claim 1, characterised in that a gene coding for ~~a specific protein, preferably~~ a therapeutically useful protein, is inserted into the multiple cloning site.

3-4. (canceled).

5. (currently amended): The plasmid according to ~~claim 3~~claim 1, characterised in that

the identification sequence is a sequence which is able to specifically bind to a protein in order to form a stable DNA-protein complex.

6. (original): The plasmid according to claim 5, characterised in that the identification sequence is a lac operator site which specifically binds to a LacI repressor protein.

7. (original): The plasmid according to claim 5 or 6, characterised in that it further comprises a gene coding for the protein which forms the DNA-protein complex, preferably a gene coding for the LacI repressor protein.

8. (previously presented): The plasmid according to claim 7, characterised in that the plasmid comprises a sequence coding for a hydrophobic membrane anchoring peptide.

9. (canceled).

10. (previously presented): The plasmid according to claim 1, characterised in that the specific recombinase recognition sequences are resolution sites (res sites) from Multimer Resolution Systems.

11. (canceled).

12. (currently amended): The plasmid according to ~~claim 11~~claim 1, characterised in that the regulatory element for the recombinase comprises a strong promoter.

13. (original): The plasmid according to claim 12, characterised in that the regulatory element is a transcriptional control system of an araB promoter of an araBAD operon.

14. (previously presented): The plasmid according to claim 1, characterised in that the marker gene is an antibiotic resistance gene.

15. (previously presented): The plasmid according to claim 1, characterised in that the prokaryotic origin of replication is a high copy number origin of replication, preferably from plasmid pUC19.

16. (previously presented): The plasmid according to claims 1, wherein the minicircle comprises an origin of replication.

17. (previously presented): A kit for the production of a therapeutically useful DNA molecule, comprising

- the plasmid according to claim 5 and
- a protein which is able to bind to the identification sequence of the plasmid in order to form a stable DNA-protein complex, whereby the protein is optionally immobilised to a solid support.

18. (original): The kit according to claim 17, characterised in that the protein is a LacI repressor protein, preferably a mutant LacI repressor protein.

19. (previously presented): The kit according to claim 17, characterised in that the protein is fused to a tag for the immobilisation to a solid support.

20. (previously presented): The kit according to claim 17, characterised in that the protein is fused to a hydrophobic, membrane anchoring peptide.

21. (currently amended): The kit according to claim 20, characterized in that it comprises a separate plasmid carrying the inducible lysis gene or wherein the plasmid comprises an inducible lysis gene and further comprises a culture of recombinant bacteria transfected with said plasmid.

22. (original): The kit according to claim 21, characterised in that the lysis gene is the lysis gene E of bacteriophage PhiX174.

23. (previously presented): The kit according to claim 17, further comprising a culture of bacteria specific for the expression and function of the recombinase.

24. (previously presented): The kit according to claim 17, further comprising arabinose.

25. (previously presented): A minicircle derived from the plasmid according to claim 8, comprising

- a multiple cloning site and
- a gene coding for a therapeutically useful protein inserted into the multiple cloning site,

whereby the minicircle is attached to a bacterial ghost over a hydrophobic membrane anchoring peptide.

26. (original): A pharmaceutical composition comprising the minicircle according to claim 25 and a pharmaceutically acceptable carrier.

27. (currently amended): A method for the production of a therapeutically useful DNA molecule, comprising

- transfecting the plasmid according to claim 2 into bacteria to replicate the plasmid,
- culturing the bacteria during which the recombinase is expressed upon induction of the regulatory element so that miniplasmids and minicircles are produced and
- isolating the minicircles.

28. (previously presented): The method according to claim 27, wherein the minicircles are isolated by using a minicircle identification sequence.

29. (previously presented): The method according to claim 27, wherein the minicircles are isolated by immobilisation to a solid support.

30. (currently amended): The method according to claim 27, characterised in that the recombinase is expressed upon induction of the regulatory element~~, preferably~~ by adding arabinose to the culture medium.

31. (previously presented): The method according to claim 27, wherein a protein recognising the mincircle identifcation sequence is further expressed in the bacteria and anchored in the bacterial membrane so as to bind to the minicircles.

32. (previously presented): The method according to claim 29, wherein the minicircles are isolated by a chromatography column.